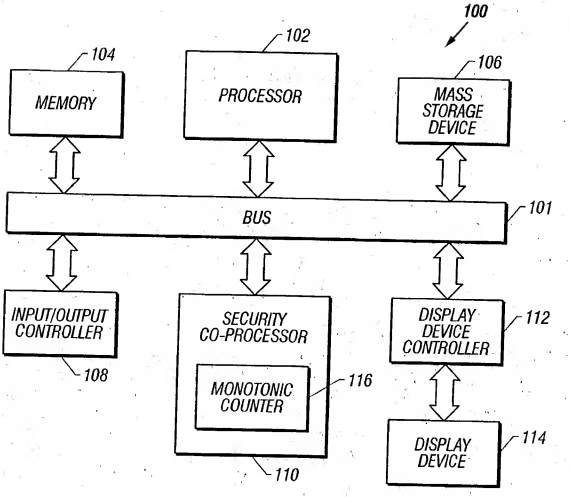
100
102
104
106
MEMORY
PROCESSOR
MASS STORAGE DEVICE
BUS
101
INPUT/OUTPUT CONTROLLER
SECURITY CO-PROCESSOR
DISPLAY DEVICE CONTROLLER
112
108
MONOTONIC COUNTER
116
DISPLAY DEVICE
114
110

FIG. 1

DIGIT COUNTER 22

COUNT VALUE	DIGIT N	• • •	DIGIT 2	DIGIT 1
0	0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
1	0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 1
2	0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0	0 0 0 0 0 0 1 1
3	0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0	0 0 0 0 0 1 1 1
4	0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0	0 0 0 0 1 1 1 1
5	0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0	0 0 0 1 1 1 1 1
6	0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0	0 0 1 1 1 1 1 1
7	0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0	0 1 1 1 1 1 1 1
8	0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0	1 1 1 1 1 1 1 1
9	0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 1	1 1 1 1 1 1 1 1
10	0 0 0 0 0 0 0 0		0 0 0 0 0 0 1 0	0 0 0 0 0 0 0 0
11	0 0 0 0 0 0 0 0		0 0 0 0 0 0 1 1	0 0 0 0 0 0 0 1
•	•		•	•
•	•		•	•
•	•		•	•
10^N-1	1 1 1 1 1 1 1 1		1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1

FIG. 2

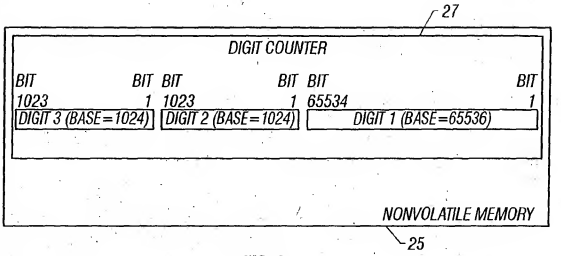
27
DIGIT COUNTER
BIT 1023
BIT 1
BIT 1023
BIT 1
BIT 65534
BIT 1
DIGIT 3 (BASE=1024)
DIGIT 2 (BASE=1024)
DIGIT 1 (BASE=65536)
NONVOLATILE MEMORY
25

FIG. 3

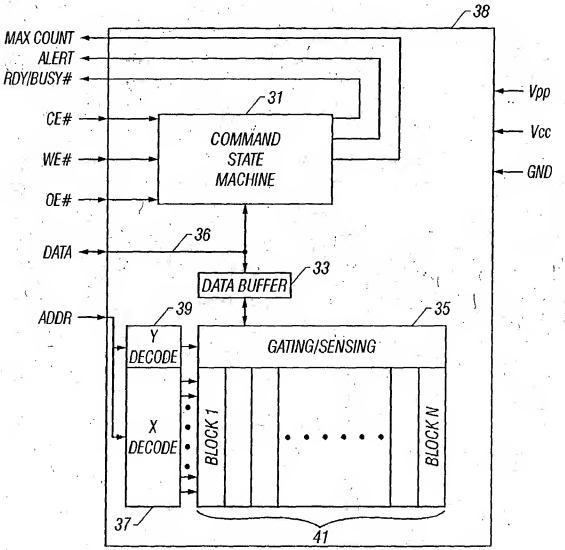
38
MAX COUNT
ALERT
RDY/BUSY#
CE#
WE#
OE#
DATA
ADDR
31
COMMAND STATE MACHINE
36
DATA BUFFER
33
39
Y DECODE
X DECODE
35
GATING/SENSING
BLOCK 1
BLOCK N
37
41
Vpp
Vcc
GND

FIG. 4

COMMAND	FIRST BUS CYCLE			SECOND BUS CYCLE			THIRD BUS CYCLE			
	OPER	ADDR	DATA	OPER	ADDR	DATA	OPER	ADDR	DATA	
READ ARRAY	WRITE	X	XXFFH	READ	AA	AD	—	—	—	—
READ STATUS	WRITE	X	XX90H	READ	X	ST	—	—	—	—
CLEAR STATUS	WRITE	X	XX50H	—	—	—	—	—	—	—
PROGRAM	WRITE	X	XX40H	WRITE	AA	WD	—	—	—	—
BLOCK ERASE	WRITE	X	XX20H	WRITE	BA	XXDOH	—	—	—	—
INCREMENT	WRITE	X	XXC0H	—	—	—	—	—	—	—
61 → COUNTER SETUP	WRITE	X	XX60H	WRITE	BA	DB(1)	WRITE	BA	DB(2)	• • •
62 →										

LEGEND

AA = ARRAY ADDRESS
AD = ARRAY DATA
BA = BLOCK ADDRESS
DB = DIGIT BASE
ST = STATUS
WD = WRITE DATA

FIG. 5

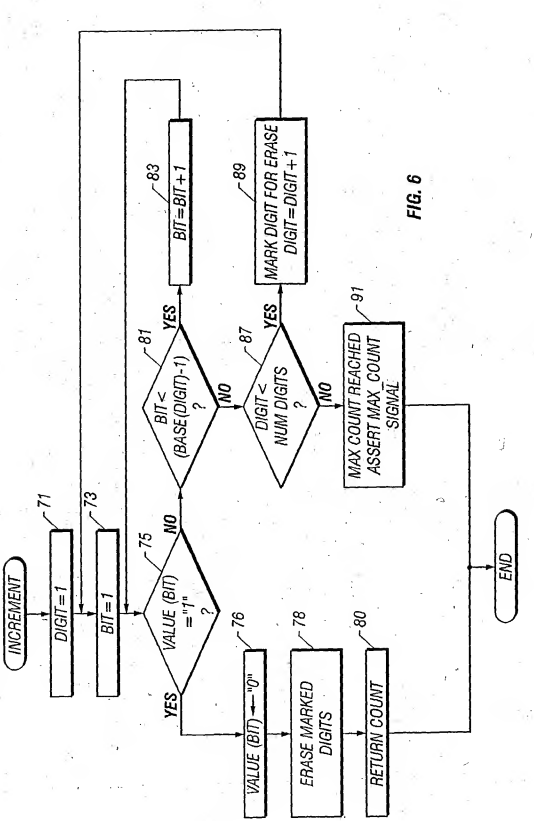
INCREMENT
71
DIGIT = 1
73
BIT = 1
75
VALUE (BIT) = "1" ?
YES
NO
76
VALUE (BIT) ← "0"
78
ERASE MARKED DIGITS
80
RETURN COUNT
81
BIT < (BASE(DIGIT)-1) ?
YES
NO
83
BIT = BIT + 1
87
DIGIT < NUM DIGITS ?
YES
NO
89
MARK DIGIT FOR ERASE
DIGIT = DIGIT + 1
91
MAX COUNT REACHED
ASSERT MAX_COUNT SIGNAL
END

FIG. 6